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Patent claims

5 1. A roof structure for a vehicle with a roof panel  
(1), with side wall panels (2) and with a front and  
rear roof frame (10, 11), the roof panel (1) having a  
front side (3) and a rear side (4) and a longitudinal  
10 (10) being assigned to the front side (3) of the roof  
panel (1) and the rear roof frame (11) being assigned  
to the rear side (4), and the roof panel (1) being  
connected at least indirectly at its longitudinal sides  
(5, 6) to the side wall panels (2), characterized in  
15 that the roof panel (1) is connected to the side wall  
panels (2) and/or to the front roof frame (10) and/or  
to the rear roof frame (11) via one or more angled bars  
(20, 20', 23, 23').

20 2. The roof structure as claimed in claim 1,  
characterized in that an essentially vertical limb (21)  
of the angled bar (20, 20') projects upward to the roof  
panel (1) and an essentially horizontal limb (22) of  
the angled bar (20, 20') projects away from the side  
25 wall panel (2).

3. The roof structure as claimed in claim 1 or 2,  
characterized in that the roof panel (1) is angled  
downward at its longitudinal sides (5, 6) with an edge  
30 strip (7) and is connected to the vertical limb (21) of  
the angled bar (20), and the horizontal limb (22) of  
the angled bar (20) is connected to a flange (8) of the  
side wall panel (2).

35 4. The roof structure as claimed in claim 3,  
characterized in that the edge strip (7) is angled away  
from the roof panel (1) by at least 90°, so that the  
edge strip (7) projects under the roof panel (1).

5. The roof structure as claimed in at least one of the preceding claims, characterized in that the front side (3) and/or the rear side (4) of the roof panel (1) is of stepped design at its end (3', 4') and ends in a lowered flange (15, 16), the lowered flange (15, 16) being provided for receiving a window (17, 18).

6. The roof structure as claimed in at least one of claims 1-4, characterized in that an angled bar (23, 23') is arranged on the front side (3) and/or rear side (4) of the roof panel (1), the essentially horizontal limb (24, 24') of which projects away from the roof panel (1) and is provided for receiving a window (17, 18), and the essentially vertical limb (25, 25') engages behind the angled end (3', 4') of the front side (3) and/or rear side (4) of the roof panel (1).

7. The roof structure as claimed in at least one of the preceding claims, characterized in that the front end (3') and/or rear end (4') of the roof panel (1) is angled by at most 90°.

8. The roof structure as claimed in at least one of the preceding claims, characterized in that the angled bar (20, 20', 23, 23') forms an essentially leakproof connection with the edge strip (7) of the roof panel (1) and/or with the side wall panel (2).

9. The roof structure as claimed in at least one of the preceding claims, characterized in that the angled bar (20, 20') is welded to the edge strip (7) of the roof panel (1).

10. The roof structure as claimed in at least one of the preceding claims, characterized in that the angled bar (20, 20') is adhesively bonded to the side wall panel (2).

11. The roof structure as claimed in at least one of the preceding claims, characterized in that the angled bar (20, 20') extends approximately over the entire longitudinal side (5, 6) of the roof panel (1).

12. The roof structure as claimed in at least one of the preceding claims 1 to 10, characterized in that the angled bar (20, 20', 23, 23') is of multipiece design.

13. The roof structure as claimed in at least one of the preceding claims, characterized in that the angled bar (20, 20', 23, 23') is formed from steel.

14. The roof structure as claimed in at least one of the preceding claims, characterized in that the roof panel (1) is manufactured in a light-weight construction.

15. A method for producing a roof structure as claimed in at least one of the preceding claims, characterized in that a roof panel (1) is joined at its longitudinal sides and/or its front and/or rear side (3, 4) to a respective angled bar (20, 20', 23, 23') to form a roof module.

16. The method as claimed in claim 15, characterized in that the roof module is joined in the body shell.

17. The method as claimed in claim 15, characterized in that the roof module is joined to a vehicle cell during the assembly process.